

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application. Claim 1 is canceled. Claims 2-22 are added.

Listing of Claims:

1. (canceled)
2. (new) A machine vision system, comprising:
  - A) a first lighting system adapted to produce light, the first lighting system comprising:
    - i) a first light source adapted to produce a first light component having a first spectrum; and
    - ii) a second light source adapted to produce a second light component having a second spectrum, the first spectrum being different than the second spectrum; and
  - B) a processor coupled to the lighting system and adapted to transmit first lighting command signals to modulate the light.
3. (new) The machine vision system of claim 2, wherein at least one of the first light source and the second light source comprises at least one LED.
4. (new) The machine vision system of claim 2, wherein the processor is configured to modulate at least one of the first light source and the second light source to change at least one of a hue, a saturation and an intensity of the light.
5. (new) The machine vision system of claim 2, wherein at least one of the first light source and the second light source is a UV radiation source.

6. (new) The machine vision system of claim 2, wherein the first lighting command signals are selected to achieve at least one of pulse width modulation, pulse amplitude modulation, and pulse displacement modulation of at least one of the first light source and the second light source.

7. (new) The machine vision system of claim 2, further comprising a vision system.

8. (new) The machine vision system of claim 7, wherein the vision system is adapted to produce a gray scale image of an object illuminated by the light.

9. (new) The machine vision system of claim 2, further comprising a second lighting system adapted to produce a second light, wherein the first lighting system is adapted to illuminate an object at a first illumination angle and the second illumination system is adapted to illuminate the object at a second illumination angle.

10. (new) The machine vision system of claim 9, wherein the second lighting system comprises:

- i) a third light source adapted to produce a first component of the second light having a third spectrum; and
- ii) a fourth light source adapted to produce a second component of the second light having a fourth spectrum, the third spectrum being different than the fourth spectrum.

11. (new) The machine vision system of claim 9, wherein the processor is coupled to the second lighting system and adapted to transmit second lighting command signals to modulate the second light.

12. (new) A method of illuminating an object, for use with a machine vision system, the method comprising steps of:

illuminating the object with a first light having a first spectrum;  
illuminating the object with a second light having a second spectrum, the first spectrum  
being different than the second spectrum; and  
modulating at least one of the first light and the second light, whereby the object is  
illuminated with modulated light.

13. (new) The method of claim 12, wherein at least one of the step of illuminating the  
object with a first light and the step of illuminating the object with a second light comprises  
illuminating the object with light from an LED.

14. (new) The method of claim 12, wherein the step of modulating comprises modulating  
at least one of the first light and the second light to change at least one of a hue, a saturation  
and an intensity of light incident on the object.

15. (new) The method of claim 12, wherein at least one of the step of illuminating the  
object with a first light and the step of illuminating the object with a second light comprises  
illuminating the object with UV radiation.

16. (new) The method of claim 12, wherein the step of modulating comprises at least one  
of pulse width modulating, pulse amplitude modulating, and pulse displacement modulating at  
least one of the first light and the second light.

17. (new) The method of claim 12, further comprising a step of forming an image of the  
object with at least one of a portion of the first light and a portion of the second light.

18. (new) The method of claim 17, wherein the image is a gray scale image.

19. (new) The method of claim 12, wherein the step of illuminating the object with a first light having a first spectrum and the step of illuminating the object with a second light having a second spectrum both occur at substantially a same angle with respect to the object.
20. (new) The method of claim 19, further comprising a step of illuminating the object at a second illumination angle with a third light.
21. (new) The method of claim 20, further comprising a step of illuminating the object with a fourth light at the second illumination angle, the fourth light having a fourth spectrum that is different than the third spectrum.
22. (new) The method of claim 21, further comprising modulating at least one of the third light and the fourth light.